

Appl. No. 10/829,324
Reply Filed: 22 November 2006
Reply to Office Action of: 22 June 2006

REMARKS

In response to the Office Action of 22 June 2006, the Applicant submits this Reply. In view of the amendments above and following remarks, reconsideration is requested.

Claims 1-87 are currently pending in this application, of which claims 1, 13, 30, 42, 59 and 71 are independent. Applicant thanks the Examiner for noting the allowability of claims 10, 22-29, 39, 51-58, 68 and 80-87, which were objected to. Claims 1-9, 11-21, 30-38, 40-50, 59-67 and 69-79 were rejected.

Claim Objection

Claim 1 was objected to as including a period in the middle of the claim. The amendment of claim 1 above corrects this erroneous punctuation.

Claims 10, 22-29, 39, 51-58, 68 and 80-87 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In light of the remarks below, Applicant respectfully requests reconsideration and withdrawal of these objections

Rejections Under 35 U.S.C. §102

Claims 1, 3, 13, 20, 30, 32-42, 49, 59, 61, 71 and 78, of which claims 1, 13, 30, 42, 59 and 71 are independent were rejected under 35 U.S.C. §102(b) as being anticipated by Frink¹. The rejections are respectfully traversed.

Frink is directed to system for real-time previsualization of effects to be added to high definition (HD) video data and real-time rendering of the HD video data including the added effects. The system includes a resizer for reformatting the HD video data to fit within the bandwidth limits of standard definition (SD) equipment.² Frink's HD video system 104 includes a video data router 120 for receiving and directing video data to an HD video input/output module 140, a frame buffer 122 or to the resizer 124.³ A SD digital video effects (DVE) module

¹ U.S. Patent No. 6,226,038 issued 01 May 2001 to Frink, et al.

² Frink, 1:31-36.

³ Frink, 3:22-25.

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having an input for receiving the output of the resizer and a display permits previzualizing the video data with added effects.⁴

The presently claimed invention is directed to methods and systems for efficiently using graphics hardware for real time two and three dimensional, single definition, and high definition video effects.⁵ Enhanced computing efficiency is achieved by avoiding serialization of processing, through the use of multiple *threads*. Each of the processes, from *uploading*, *decoding*, *rendering*, and *presenting* are performed by an independent *thread*, which allows parallel processing in the effect generation.⁶ The achieved efficiencies are obtained without the use of specialized hardware, such as employed by Frink (e.g., an HD video system connected by bus to a SD video system.)

With regard to claim 1, the instant Action asserts that the instantiation of separate *application, upload, decoding, render, and presenter threads* is disclosed by Frink. Applicant respectfully submits that Frink's "single stream editing system" does not operate in a manner analogous to the distinct *threads* processing data in parallel of the present invention. The Action asserts that Frink discloses *passing the video data to the application thread for creating the effect to be added to the video data, generating pre-decompressed video data from the video data, and determining parameters which describe the effect*. However, those passages simply refer to a process for synchronizing data memory read operations for displaying video segments⁷, and to the general requirements of NTSC and SECAM transmission bandwidth standards⁸, rather than to the functionality of an *application thread* as recited in claim 1. Similarly, nowhere in these same cited passages does Frink disclose *passing the pre-decompressed video data to the upload thread for uploading the pre-decompressed video data into the video hardware*. Further, contrary to the Action's assertions, neither sending the output of resizer 124 to a SDTV frame buffer⁹, nor passing video data from a storage system 202 through a HD codec 216 to an HD router 220 or

⁴ Frink, 1:48-54.

⁵ Spec., [0001].

⁶ Spec., [0033].

⁷ at col. 4, line 64 – col. 5, line 12.

⁸ Frink, col. 2, line 59 -- col. 3, line 15.

⁹ Frink, col. 3, ll. 26-32.

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NLE system 206¹⁰ is analogous to *uploading pre-decompressed video data to video hardware* such as, for example, a graphics card¹¹.

In light of Frink's failure to disclose the use of multiple, parallel processing threads, Applicant submits that claim 1 is patentable over the cited art. Claim 3 includes all of the limitations of claim 1 through dependency, and thus is similarly patentable.

Claims 30, 32, 59 and 61 recite multiple computing *threads* with distinct functionalities involved in parallel processing, and are therefore patentable over Frink for the same reasons as claim 1.

With regard to analogous claims 13, 42 and 71, the Action cites a passage in Frink¹² that, it is asserted, discloses *generating pre-decompressed video data from the received video data*. As defined in Applicant's specification, pre-decompressed video data is video data which is compressed by a format such as MPEG and may include video data packets and other static images. The cited passage merely discusses NTSC and SECAM bandwidth standards. Further, the portion of Frink immediately following the cited passage actually discloses the opposite of *generating pre-decompressed video data* – Frink's “[r]esizer 124 reformats the HDTV-video data...” to a lower resolution “to allow an SDTV representation to be displayed on SDTV equipment”¹³, consistent with the contrasting operation of Frink's system from the presently claimed invention. The Action does not offer support for the next assertion, that Frink discloses *uploading the pre-decompressed video data into video hardware*, however as noted above, the passages cited related to a similar limitation in claim 1 fails to disclose this limitation. Nor does the Action cite any evidence that Frink teaches the limitation of *determining parameters which describe the effect*.

In light of, at least, the failure of Frink to disclose the limitations discussed in the preceding paragraph, it is respectfully submitted that claims 13, 42 and 71, as well as their respective dependent claims 20, 49 and 78, are patentable over the cited art.

Rejections Under 35 U.S.C. §103

¹⁰ Frink, col. 7, line 64 – col. 8, line 2.

¹¹ Spec, see discussion of stage 304 in par. [0051].

¹² Frink col. 2, line 59 – col. 3, line 15.

¹³ Frink, col. 3, ll. 23-34.

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(a) Claims 2, 14-16, 31, 43-45, 60, and 72-74, each a dependent claim, were rejected under 35 U.S.C. §103(a) as being unpatentable over Frink in view of Barton¹⁴.

To the extent that the rejections are based upon the teachings of Frink, the rejections of claims 2, 14-16, 31, 43-45, 60, and 72-74 are respectfully traversed for the reasons stated above with regard to independent claims 1, 13, 30, 42, 57 and 71 from which the claims depend.

Applicant concurs with the Action's recognition that Frink does not teach *implementing a release thread for releasing resources utilized in decoding and rendering*. However, Applicant submits that Barton fails to meet the limitations that are missing from Frink's disclosure. Also, Barton is directed to a "Time Warping System", a field of endeavour quite dissimilar from, and as such not properly combinable with, systems for HDTV editing and effects previsualization using SDTV devices. Barton "provides a multimedia storage and display system that allows the user to view a television broadcast program with the option of instantly reviewing previous scenes with the program."¹⁵

Also, with regard to claim 16, Frink does not disclose, as asserted, that the *application initiates a thread for each step performed*. The cited passage¹⁶ is devoid of any discussion of threads or multiple, separately initiated threads. Rather, as noted above, the cited portion only describes an approach for identifying a data file to be played back to a display unit.

In light of the foregoing, Applicant submits that claim 2, 14-16, 31, 43-45, 60, and 72-74 are patentable over the combination of Frink and Barton.

(b) Claims 4, 21, 33, 50, 62 and 79, each a dependent claim, were rejected under 35 U.S.C. §103(a) as being unpatentable over Frink in view of Geiger¹⁷.

To the extent that the rejections are based upon the teachings of Frink, the rejections of claims 4, 21, 33, 50, 62 and 79 are respectfully traversed for the reasons stated above with regard to independent claims 1, 13, 30, 42, 57 and 71 from which the claims depend.

Applicant concurs with the Action's recognition that Frink fails to meet the limitation of a *snooping command to determine a timing of each thread implementation*. Geiger also fails to meet the limitations of the independent claims as discussed above, and thus claims 4, 21, 33, 50,

¹⁴ U.S. Patent No. 6,233,389 issued 15 May 2001 to Barton, et al.

¹⁵ Barton, col. 3, ll. 23.

¹⁶ Frink, col. 4, line 61 -- col. 5, line 12.

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62 and 79 are patentable at least by virtue of their dependence from claims 1, 13, 30, 42, 57 and 71.

(c) Claims 5, 34 and 63, each a dependent claim, were rejected under 35 U.S.C. §103(a) as being unpatentable over Frink in view of Watkins¹⁸.

To the extent that the rejections are based upon the teachings of Frink, the rejections of claims 5, 34 and 63 are respectfully traversed for the reasons stated above with regard to independent claims 1, 13, 30, 42, 57 and 71 from which the claims depend.

Applicant concurs with the Action's recognition that Frink fails to meet the limitation of *a partially decoding the sample*. Watkins also fails to meet the limitations of the independent claims as discussed above, and thus claims 5, 34 and 63 are patentable at least by virtue of their dependence from claims 1, 13, 30, 42, 57 and 71.

(d) Claims 6-9, 11-12, 35-38, 40-41, 64-67 and 69-70, each a dependent claim, were rejected under 35 U.S.C. §103(a) as being unpatentable over Frink and Geiger in view of Watkins.

To the extent that the rejections are based upon the teachings of Frink, the rejections of claims 6-9, 11-12, 35-38, 40-41, 64-67 and 69-70 are respectfully traversed for the reasons stated above with regard to independent claims 1, 13, 30, 42, 57 and 71 from which the claims depend.

Applicant concurs with the Action's recognition that Frink and Geiger fail to meet the limitation of *issuing a first snooping command*. As noted above, Geiger and Watkins fail to meet the limitations of the independent claims as discussed above, and thus claims 6-9, 11-12, 35-38, 40-41, 64-67 and 69-70 are patentable at least by virtue of their dependence from claims 1, 13, 30, 42, 57 and 71.

(e) Claims 17-19, 46-48 and 75-77, each a dependent claim, were rejected under 35 U.S.C. §103(a) as being unpatentable over Frink and Barton in view of Hochmuth¹⁹.

¹⁷ U.S. Patent Publication No. 2003/0061457 published 27 March 2003, Geiger, et al.

¹⁸ U.S. Patent No. 6,337,710 issued 08 January 2002 to Daniel Watkins.

¹⁹ U.S. Patent Publication No. 2003/0212742 published 13 November 2003, Hochmuth, et al.

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To the extent that the rejections are based upon the teachings of Frink, the rejections of claims 17-19, 46-48 and 75-77 are respectfully traversed for the reasons stated above with regard to independent claims 1, 13, 30, 42, 57 and 71 from which the claims depend.

Applicant concurs with the Action's recognition that Frink and Barton fail to meet the limitation that the *steps of uploading the pre-decompressed video, decoding the pre-decompressed video data, rendering the effect, and releasing resources are performed by a 3D-Server*. Hochmuth, and Barton (as noted above) also fail to meet the limitations of the independent claims as discussed above, and thus claims 17-19, 46-48 and 75-77 are patentable at least by virtue of their dependence from claims 1, 13, 30, 42, 57 and 71.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this reply, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, please charge any fee to **Deposit Account No. 50-0876**.

Respectfully submitted,

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